Algebra 2 MIDTERM PRACTICE - Tri 1 2012

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

Simplify the given expression.

1. $\left(18x^2 + 9xy - 24y^2\right) - \left(8x^2 - 2xy\right)$
   a. $10x^2 + 7xy - 24y^2$ b. $10x^2 - 9xy - 22y^2$ c. $10x^2 - 11xy$ d. $10x^2 + 11xy - 24y$

2. $20 \div 5 \cdot 2$
   a. 10 b. 2 c. 8 d. 4

3. $4 + \left[-2(4-1)\right]^2$
   a. −32 b. 40 c. −14 d. −2

4. $\sqrt{16} + \left\{10 \div \left[11 - (5+1)\right]\right\}$
   a. 5.43 b. 10 c. 6 d. 11

5. $\dfrac{-3 - \sqrt{3^2 - 4 \cdot 1 \cdot 2}}{2 \cdot 1}$
   a. −3.08 b. 2 c. −3.5 d. −2

6. $2(x + 3y) - 3(4x + y)$
   a. $-10x + 6y$ b. $-10x + 3y$ c. $14x + 3y$ d. $-4x - 4y$

Evaluate the function.

7. Find the value of $f(-4)$ if $f(x) = 2x + 8$.
   a. $f(-4) = 0$ b. $f(-4) = 10$ c. $f(-4) = 8$ d. $f(-4) = -16$

Find the slope.

8.

X	Y
-1	4
0	6
1	8

a. $\frac{1}{2}$ b. -2 c. 2 d. $-\frac{1}{2}$

9. $y = -\frac{1}{4}x - 8$

a. $-\frac{1}{4}$ b. -8 c. -1 d. 4

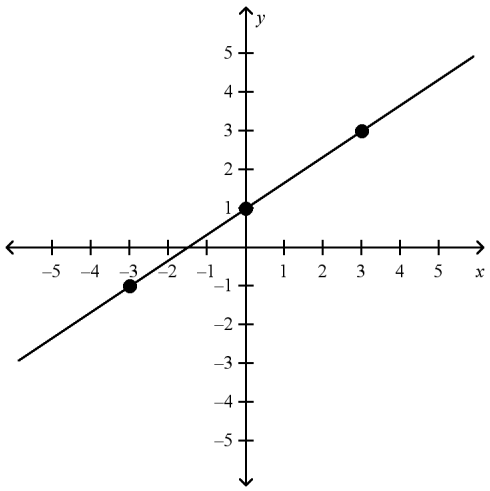
10. $x = -5$

a. -5 b. undefined c. 0 d. $-\frac{1}{5}$

11. $y = 3$

a. 0 b. undefined c. 1 d. 3

12.



a. $\frac{3}{2}$ b. 1 c. $\frac{2}{3}$ d. $-\frac{2}{3}$

Solve the given formula for the specified variable.

13. $u = \frac{b}{t}$, for t

a. $t = \frac{u}{b}$ b. $t = \frac{b}{u}$ c. $t = b$ d. $t = ub$

Write the equation of the line that satisfies the given conditions.

14. slope of 6, and passes through (4, 29)

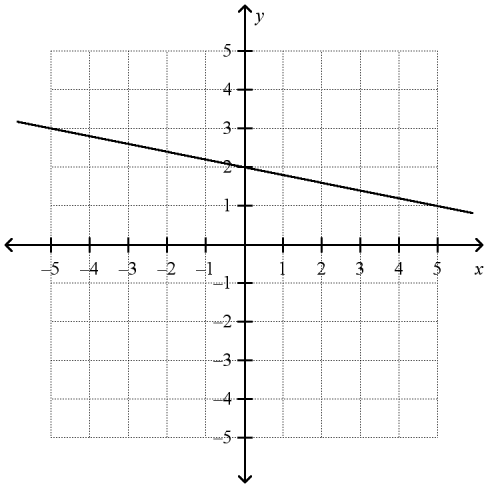
a. $y = 6x + 5$ b. $y = 4x - 4$ c. $y = 29x + 5$ d. $y = 6x - 29$

15.

x	y
–3	–12
0	–7
3	–2
6	3

a. $y = \frac{5}{3}x - 7$ b. $y = \frac{3}{5}x - 7$ c. $y = -\frac{5}{3}x - 7$ d. $y = \frac{5}{3}x - 12$

16.



a. $y = -5x + 2$ b. $y = \frac{1}{5}x + 2$ c. $y = 5x + 2$ d. $y = -\frac{1}{5}x + 2$

Combine the functions as requested.

17. Find $(f+g)(x)$ for the following functions.

$f(x) = 8x^2 + 2x + 6$

$g(x) = 6x + 3$

a. $14x^3 + 5x + 6$ b. $8x^2 + 8x + 6$ c. $14x^2 + 5x + 6$ d. $8x^2 + 8x + 9$

18. Find $\left(\frac{f}{g}\right)(x)$ for

$f(x) = 10x^2 - 3x + 2$

$g(x) = 3x^2 - 4$

a. $\frac{10x^2 - 3x}{3x^2} - 2$ b. $\frac{10x^2 - 3x + 2}{3x^2 - 4}$ c. $\frac{3x^2 - 4}{10x^2 - 3x + 2}$ d. $\frac{10x^3 - 3x^2 + 2x}{3x^2 - 4} \cdot x$

19. Find $(f \cdot g)(x)$ for $f(x) = 2x^2 + 3x - 6$ and $g(x) = 4x$

a. $6x^3 + 7x^2 - 2x$ b. $8x^3 + 3x - 6$ c. $8x^3 + 12x^2 - 24x$ d. $8x^2 + 12x - 24$

20. Find $(f-g)(x)$ for the following functions.

$f(x) = 15x + 22$

$g(x) = -11x^2 + 4x + 32$

a. $-11x^2 - 11x - 10$ c. $-11x^2 - 11x + 10$

b. $26x^2 - 4x - 10$ d. $11x^2 + 11x - 10$

State the function family that fits each situation.

21. $y = x^2$

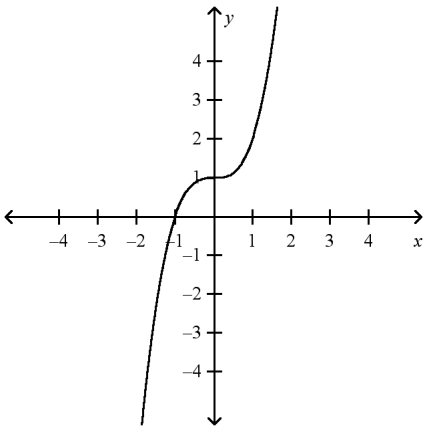
a. linear b. quadratic c. cubic d. exponential

22. $y = e^x$

a. logarithmic b. exponential c. quadratic d. inverse

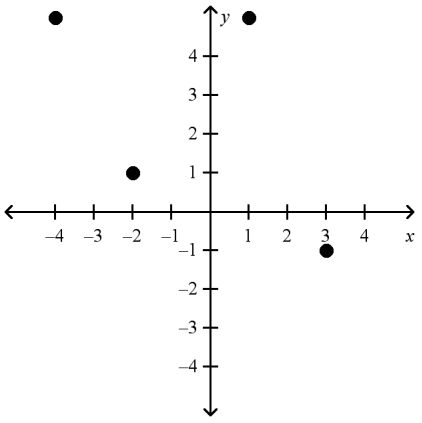
23. $y = x$

a. Exponential b. Linear c. Quadratic d. Cubic

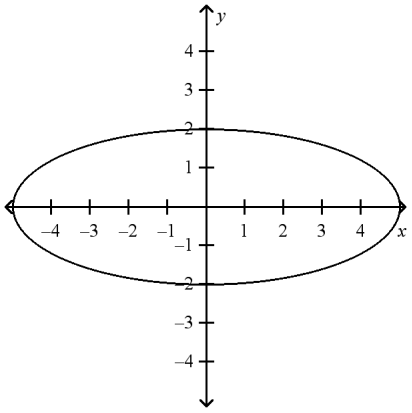
24. 

a. Exponential b. Trigonometric c. Cubic d. Quartic

Are the following relations a function?

25. 

a. Yes, a function b. No, not a functin

26. 

a. Yes, a function b. No, not a function

27. D R

$\begin{bmatrix} -3 \\ 0 \\ 2 \\ 5 \end{bmatrix}$ $\begin{bmatrix} -5 \\ 2 \\ 4 \end{bmatrix}$

a. Yes, a function b. No, not a function

28. $\{(0,4),(3,5),(-4,-1),(2,7),(3,-2)\}$

a. Yes, a function b. No, not a function

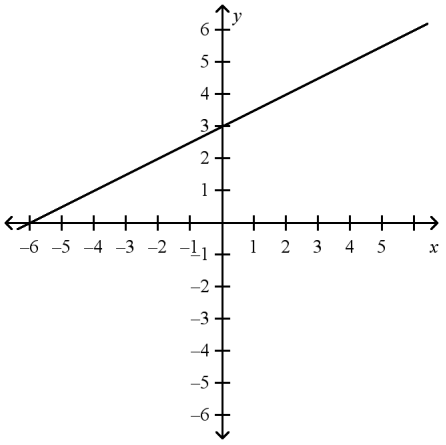
Give the domain and range of each fuction or relation.

29. $\{(-4,4),(2,0),(2,6),(-1,5),(6,-3)\}$

a. D:$\{-4,-1,2,6\}$ R:$\{-3,0,4,5,6\}$ b. D:$\{-3,0,4,5,6\}$ R:$\{-4,-1,2,6\}$ c. D:$\{-4,-3,-1\}$ R:$\{0,2,4,5,6\}$ d. D:$\{-4,-1,2,2,6\}$ R:$\{-3,4,5,6\}$

Match the equation with the graph.

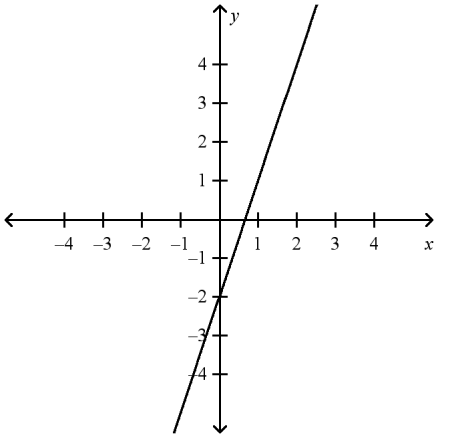
30.



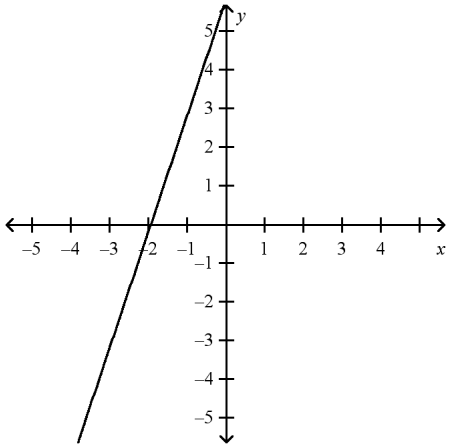
a. $y = \frac{1}{2}x - 6$ b. $y = 2x + 3$ c. $y = \frac{1}{2}x + 3$ d. $y = -\frac{1}{2}x - 6$

31. $y = 3x - 2$

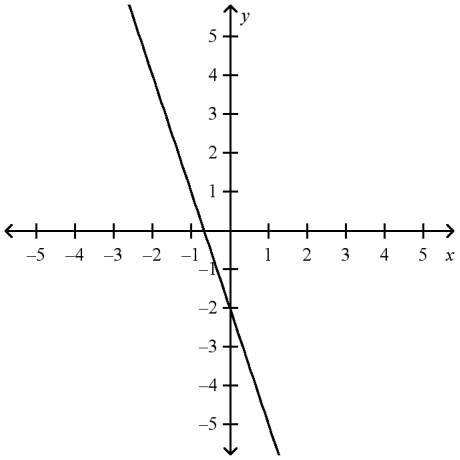
a.



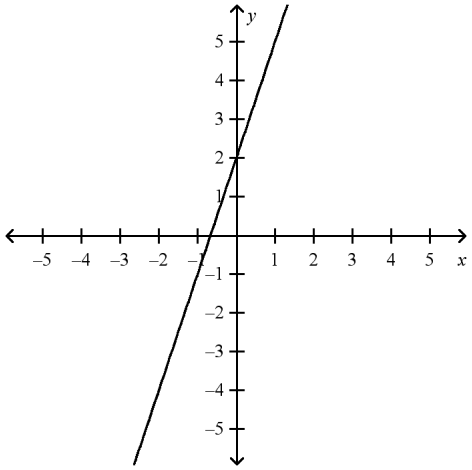
c.



b.



d.



Simplify.

32. $\sqrt{96}$

a. $4\sqrt{6}$ b. $16\sqrt{6}$ c. $2\sqrt{6}$ d. $4\sqrt{12}$

33. $3\sqrt{20}$

a. $2\sqrt{5}$ b. $6\sqrt{5}$ c. $12\sqrt{5}$ d. $6\sqrt{10}$

Rationalize.

34. $\dfrac{8}{\sqrt{3}}$

a. $\dfrac{24}{\sqrt{3}}$ b. $\dfrac{8\sqrt{3}}{\sqrt{3}}$ c. $\dfrac{8\sqrt{3}}{3}$ d. $\dfrac{8}{3}$

Translate the following verbal expression into an algebraic expression:

35. Five less than the product of three and a number squared.

a. $3x^2 - 5$ b. $5 - 3x^2$ c. $(3 + x^2) - 5$ d. $\frac{x^2}{3} - 5$

36. eight more than the product of a number and 100

a. $100x + 8$ b. $100x - 8$ c. $100 + 8x$ d. $8 - 100x$

Describe how each function is a transformation of the parent function y=x.

37. $y = -\frac{1}{7}x - 4$

a. Flatter
Shift left 4

b. Reflected
Shift down 4
Flatter

c. Steeper
Reflected
Shift down 4

d. Steeper
Shift up 4

Solve the given equation.

38. $33p - 44 = 21$

a. 0.69 b. 1.48 c. 1.97 d. –0.70

39. $9p - 5 = 8 + 5p$

a. $\frac{13}{1.3}$ b. $\frac{4}{13}$ c. $\frac{0.13}{4}$ d. $\frac{13}{4}$

40. $45 = -30(y + 10)$

a. –11.5 b. 5.00 c. 7.63 d. –345.00

41. Find the value of $g(-3)$ if $g(x) = 10x^3 - 30x$.

a. $g(-3) = 817$
b. $g(-3) = 30$
c. $g(-3) = -180$
d. $g(-3) = -27$

The following carryout combinations are available at Mike's carryout joint.

One pizza, one coke, one bag of chips	$9.00
One pizza, two cokes	$10.00
Two pizzas, two bags of chips	$12.00

42. Assume that p=pizza, c=coke, and b=bag of chips.
Create a system of equations to represent this situation.

a. $p + b = 9$
$p + 2c = 10$
$2p + 2b = 12$

b. $p + c + b = 9$
$p + 2c = 10$
$2p + 2b = 12$

c. $p + c + b = 9$
$p + c = 10$
$p + b = 12$

d. $p + c + b = 3$
$p + 2c = 3$
$2p + 2b = 4$

43. Assume that the price of a combo meal is the same price as purchasing each item separately. Find the price of a pizza, a coke, and a bag of chips.

a. pizza: $2, coke: $4, bag of chips: $3
b. pizza: $2, coke: $3, bag of chips: $4
c. pizza: $3, coke: $2, bag of chips: $4
d. pizza: $4, coke: $3, bag of chips: $2

Find the inverse of the given relation.

44. $\{(6, -7), (11, -5), (12, -6), (16, -7)\}$

a. $\{(-7, 6), (5, -11), (-6, 12), (-7, 16)\}$
b. $\{(-7, 6), (-5, 11), (-6, 12), (-7, 16)\}$
c. $\{(-7, 6), (-5, 11), (-6, -12), (-7, 16)\}$
d. $\{(-7, 6), (-5, 11), (-6, 12), (-7, -16)\}$

45. Find $[g \circ h](x)$ and $[h \circ g](x)$.

$g(x) = 11x$

$h(x) = -10x - 8$

a. $[g \circ h](x) = -110x - 88$
$[h \circ g](x) = -110x - 88$

b. $[g \circ h](x) = -110x^2 - 88x$
$[h \circ g](x) = -110x^2 - 8x$

c. $[g \circ h](x) = -110x + 88$
$[h \circ g](x) = -110x + 8$

d. $[g \circ h](x) = -110x - 88$
$[h \circ g](x) = -110x - 8$

46. A farmhouse shelters 10 animals. Some are pigs and some are ducks. Altogether there are 36 legs. How many of each animal are there?

a. 9 ducks
1 pig

b. 2 ducks
8 pigs

c. 8 ducks
2 pigs

d. 3 ducks
7 pigs

Algebra 2 MIDTERM PRACTICE - Tri 1 2012
Answer Section

MULTIPLE CHOICE

1. D
2. C
3. B
4. C
5. D
6. B
7. A
8. C
9. A
10. B
11. A
12. C
13. B
14. A
15. A
16. D
17. D
18. B
19. C
20. D
21. B
22. B
23. B
24. C
25. A
26. B
27. A
28. B
29. A
30. C
31. A
32. A
33. B
34. C
35. A
36. A
37. B
38. C
39. D
40. A

41. C
42. B
43. D
44. B
45. D
46. B